USER MANUAL SCC 2

P/N	500156
Date	July 2015
Issue	2.0
Language	EN
SCC 2 Software Version	1.3.X

www.steyr-motors.com

STEYR MOTORS GmbH
Im Stadtgut B1,
A-4407 Steyr-Gleink, AUSTRIA

1 Table of contents

1 Table of contents 3
2 General 4
2.1 Important safety and legal information 4
2.2 Cleaning the display 5
2.3 Abbreviations 5
2.4 Hardware Installation 6
3 Basic Functions 9
4 Connecting the display 10
5 Display menus 11
5.1 Home menu 11
5.2 Fuel menu 13
5.2.1 Set Fuel Tank size, Gear Ratio and Propeller Pitch 15
5.3 Engine menu 17
5.4 Alarm menu 18
5.5 Diagram menu 19
5.5.1 Change displayed parameter 19
5.6 I/O-Box menu (Option) 21
5.7 Display Settings menu 22
5.7.1 Day/Night appearance 22
6 Software update 23
6.1 Software update for SCC 23
6.2 Software update to display I/O-Box menu 24
7 Dimensions for Installation 25
8 Technical Data 26

2 General

2.1 Important safety and legal information

Liability
STEYR MOTORS can accept no liability for:
- Consequential damage due to use of the SCC.
- Possible errors in the manuals and the results thereof.
- Use that is inconsistent with the purpose of the product.

Safety
Do not work on an electrical system if it is still connected to a current source. Only allow changes in your electrical system to be carried out by qualified electricians.

Under no circumstances shall STEYR MOTORS or any of its subsidiaries or any of its external suppliers accept liability for any loss of data, income, incidental damage or consequential losses incurred as a result of the use of the product whosoever caused when used as a monitor for electronically controlled engines or other systems even if the information shown on the display are wrong.

Navigation
The GPS coordinates are only aid to navigation. Its accuracy can be affected by many factors, including equipment failure or defects, environmental conditions, and improper handling or use. It is the user's responsibility to exercise common prudence and navigational judgment.
Always check that your route to a waypoint is safe before traveling towards it.

Precautions
Do not use sharp or hard things such as ball pens.

Warranty
The STEYR CONTROL CENTER is classified as an electronic device and the Warranty Conditions apply as specified in the STEYR MOTORS Marine Warranty Conditions.

Software Updates
Software status and version undergo continuous improvements within their product life. Software updates can be called up on demand with specified procedures as provided by Steyr Motors.

NOTE:
In order to consistently bring you the highest quality, full featured products, we reserve the right to change our specifications and designs at any time.

Before beginning Installation or operation of this product:
- Read and follow all installation and operation manuals.
- Read and follow this user manual.
- Please contact STEYR MOTORS Service Partner immediately if you have any questions.

2.2 Cleaning the display

Take care when cleaning the display, to avoid damaging it.

- Do NOT wipe the display screen with a dry cloth, as this could scratch the screen coating.
- Do NOT use acid, ammonia based or abrasive products.

Regularly clean your Display as follows:

1. Switch off the power to the Display.
2. Wipe the Display with a clean soft cloth. To remove oily finger marks use a spray cleaning agent of the type used for cleaning spectacles.

Cleaning the case

Take care when cleaning the case, to avoid damaging it.

- Do NOT apply too high pressure to the case, especially near the display, as this could damage the display.
- Clean the case with a clean soft cloth, water and soap.
- For obstinate soiling, you can carefully use a mild detergent, rinsing afterward with plenty of water.

2.3 Abbreviations

In this document, the following terms and abbreviations are used:

ECU	Engine Control Unit
SCC2	Steyr Control Center Version 2
CAN	Controller Area Network (Serial communication protocol)
GPS	Global Positioning System
GMT	Greenwich Mean Time

2.4 Hardware Installation

The following instructions will guide you through installing the PowerView display.

Inspecting Package Contents

Be sure to inspect the kit for all parts before beginning installation. If any parts are missing or damaged, please get in contact with the Company the product has been purchased.

The items included in the box are:

- Display unit
- Faceplate and cover
- Four each screws, flat washers and nylock nuts
- Installation and Operations manual
- User manual P. No. 500156 (not illustrated)

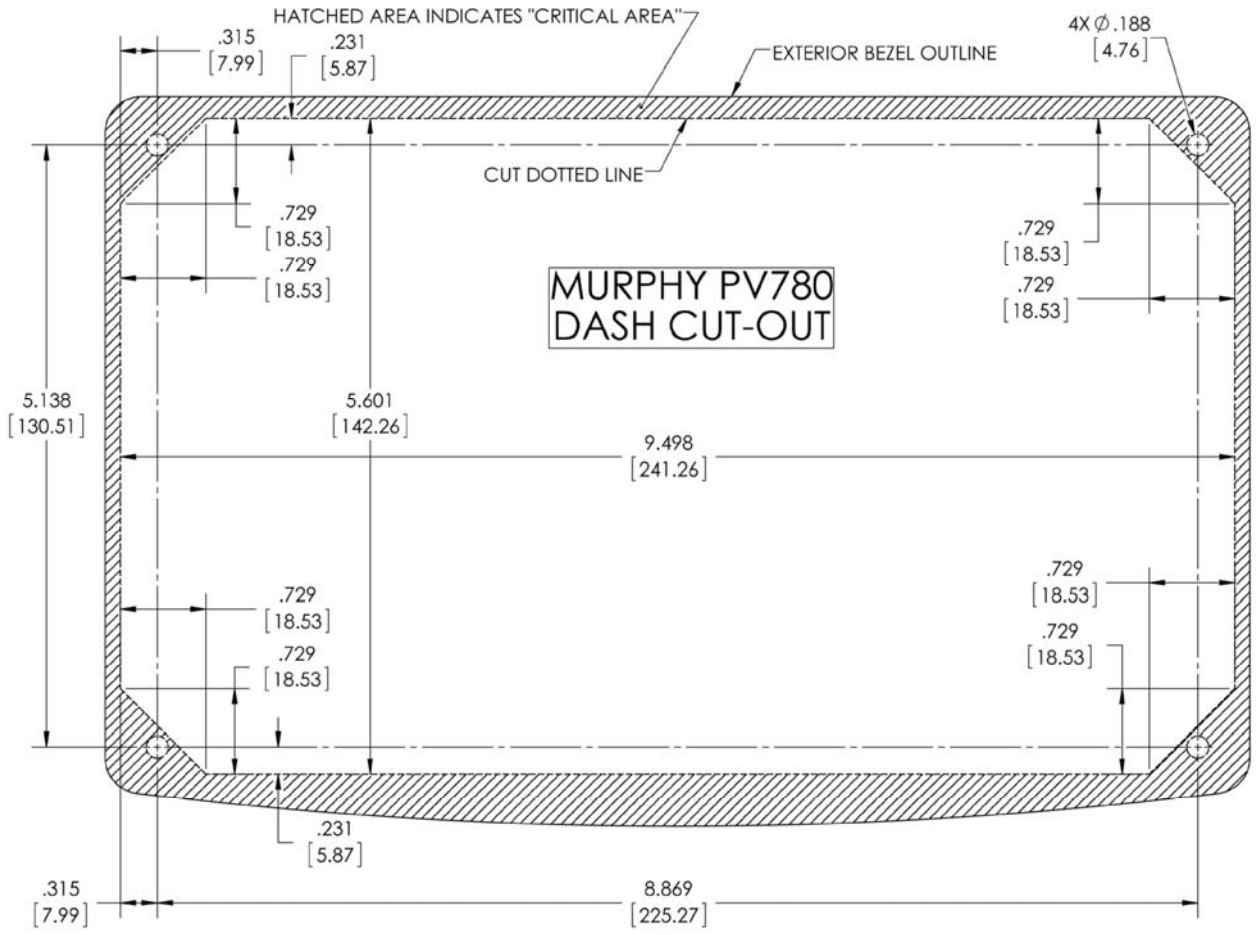
Dash-Mounted Installation

Tools needed:

- Drill with 5/32 in. size bit
- Saw
- Wrench or socket 6-32 Nylock nuts (provided) to studs

Preparing the Dash

- Determine the location of the PowerView in the dash.
- Use the Installation Template (see illustration below) as a guideline to cut a hole in the dash to the specified dimensions.



- Drill holes where indicated on the template for the mounting screws.

NOTE:

When using the paper template from this manual, be aware that the pdf file may not automatically print to scale. Check the accuracy of the printed template by verifying the measurements labeled on the template are correct.

Mounting the Unit

1. Place the back side of the display through the opening in the dash.
2. Use the four screws to line up the unit with the drilled holes.
3. Push the unit through the opening and screws through the drilled holes until the back of the case is flush.
4. Use the Nylock nuts provided to tighten unit to the dash. Use the appropriate wrench or socket to tighten. Torque lock nuts to 8-10 inch-pounds.

Flush Mounting the Dash

1. Cut the dash to allow for the display without bezel. Carefully follow the measurements of the included dash cut-out to ensure enough of the dash is available to properly secure the display. Torque the 6-32 Nylock nuts to 5 inch-pounds.
2. Place the display behind dash and line up the four mounting holes on the display with the holes in dash.
3. Install four bolts and tighten nuts

3 Basic Functions

Flat Screen Display
A color screen displays gauges, fault messages and menu options for setup and configuration.

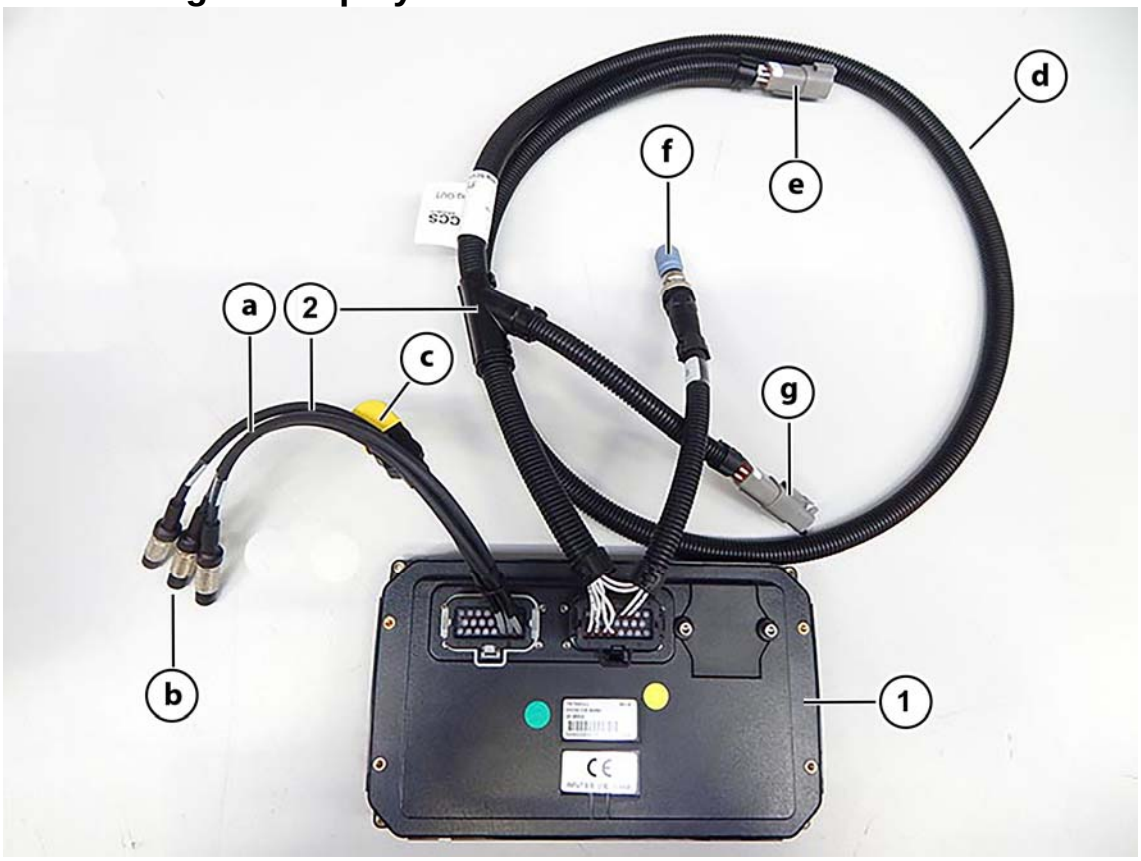
Function Keys
Via the function Key(s) the different menus and options can be selected.

MENU Key
Pressing the MENU key at any time displays the list of menu options.

ENTER Key
Pressing the ENTER key will select the option displayed much like the ENTER key on a keyboard.

Wrong Hardware
After SCC2 is activated the hardware is checked.
If an error is detected, the following error message is displayed.
Please contact STEYR MOTORS.

4 Connecting the display



View (back side)

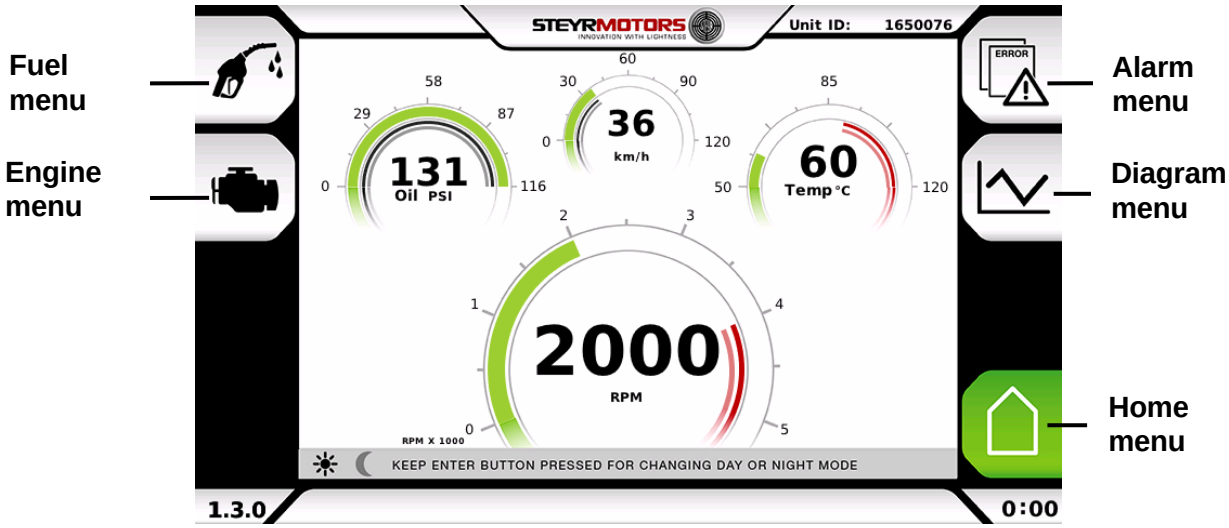
ME1504010 Kit includes:

1. P. No. 800732 STEYR CONTROL CENTER (SCC 2)
2. P. No. 701807 HARNESS (SCC 2)
   a. 0,2 m Connection cable to:
   b. 3x Video inputs
   c. 1x USB connection (readout/update)
   d. 1,5 m Connection cable to:
   e. Engines instrument panel; 4-pole-Deutsch-plug
   f. GPS (NMEA 2000 connector)
   g. 120 Ohm CAN terminator
   Connection to other instruments via 4-pole-Deutsch-plug and 120 Ohm CAN terminator
3. P. No. 500156 USER MANUAL (SCC2)

5 Display menus

5.1 Home menu

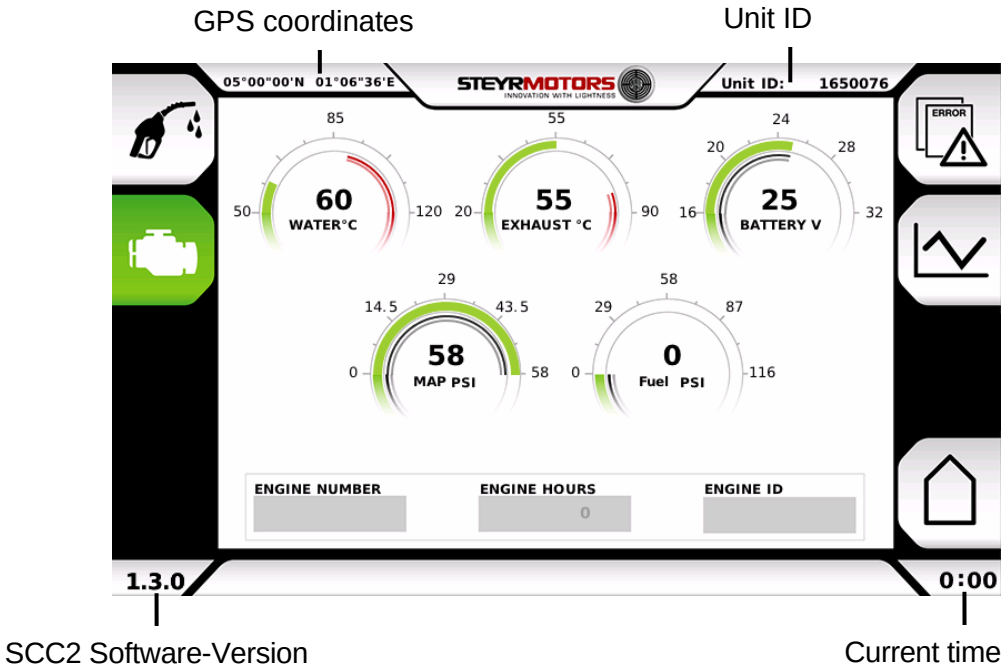
Below screen will appear once the function-key for menu “Home” is pressed.



The Home menu displays:

- Engine RPM
- Oil pressure
- Engine coolant temperature
- Speed of the vessel Note: Only in combination with GPS-input signal displayed

For engine rpm and coolant temperature, a warning range (red range) shall be displayed as shown in the above illustration. The length of the red bar is adjusted automatically according the engine model in use.



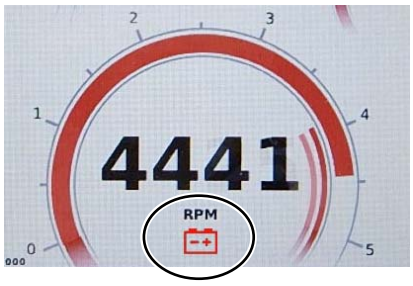
GPS coordinates
On the top left you can see the GPS information. If you have connected a GPS receiver and it is receiving data, you see this kind of information.
Without communication to the GPS, the speed gauge (the whole gauge including scaling, etc.) and the current time shall not be displayed.

Unit ID
The unit ID (hardware number) of the SCC2 shall be displayed top right.

Software-Version
The Software-Version shall be displayed bottom left.

Current time
Current time shall be displayed bottom right.
NOTE: Only in combination with GPS-input signal displayed.

Battery charge indication light

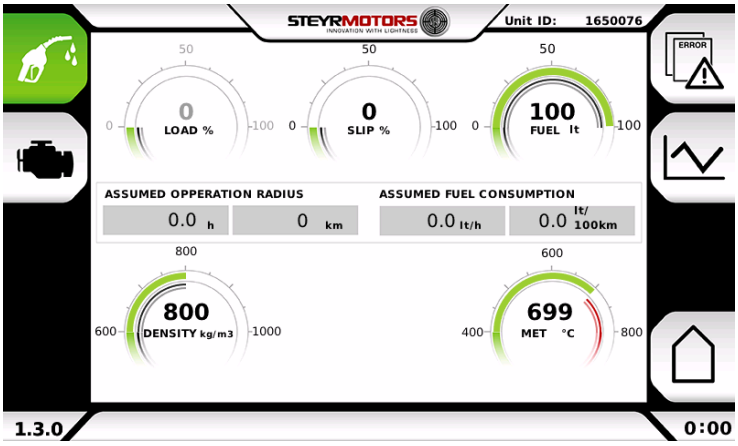


Below 800 rpm the battery charge indication light won`t appear.

The battery charge indication will appear under following circumstances:
- > above 800 rpm
- by a 24 V system, the battery voltage may be < below 25,0 V
- by a 12 V system, the battery voltage may be < below 12,5 V

5.2 Fuel menu

Below screen will appear once the function-key for menu “Fuel” is pressed.



LOAD gauge
Displays the load on the engine in percent.
Calculated from ECU via actual fuel injection quantity to max. possible fuel quantity.

SLIP gauge

- When no GPS input exist, the gauge for SLIP shall not be displayed.
- See displayed gauge for SLIP in above illustration.
- See non displayed gauge for SLIP in below illustration.

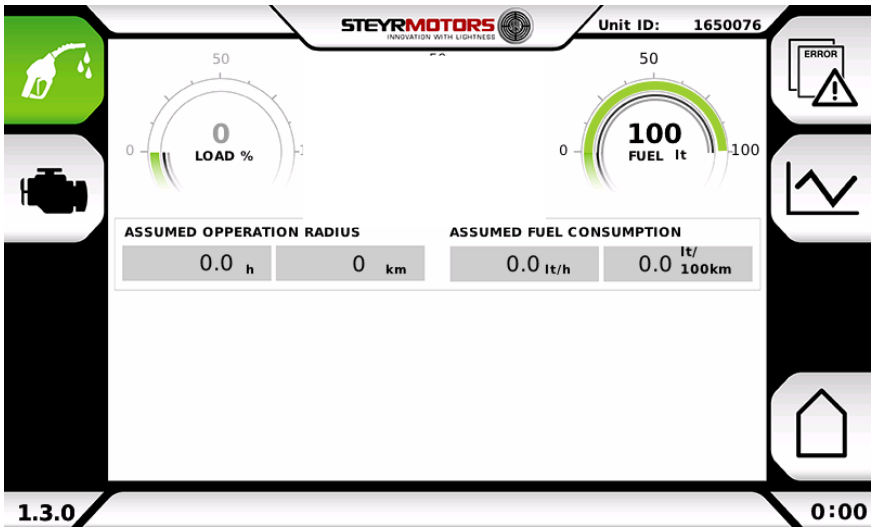
NOTE: The gauge SLIP is an indicator for the driving efficiency. It is the ratio of actual velocity (determined by GPS) and the calculated velocity out of engine speed, gear ratio and propeller pitch.

FUEL gauge
Displays the actual fuel quantity in fuel tank
NOTE: Fuel quantity signal only to transfer via engine CAN BUS.

ASSUMED OPERATION RADIUS
Displays the range in hour and kilometer.
NOTE: Operation radius is only calculated if a fuel quantity via fuel gauge received.

ASSUMED FUEL CONSUMPTION
Displays the fuel consumption in selected unit in Liter/hour and selected unit in Liter/100 km.

DENSITY and MET gauge
When no Fuel Compensation Kit is installed or no fuel density message is received for 90 seconds, the gauges (bottom left and right) will not be displayed (see below illustration).
See displayed gauges in above illustration.



Density
Displays actual measured fuel density.

MET
Manifold Exhaust Temperature measured before turbo charger.

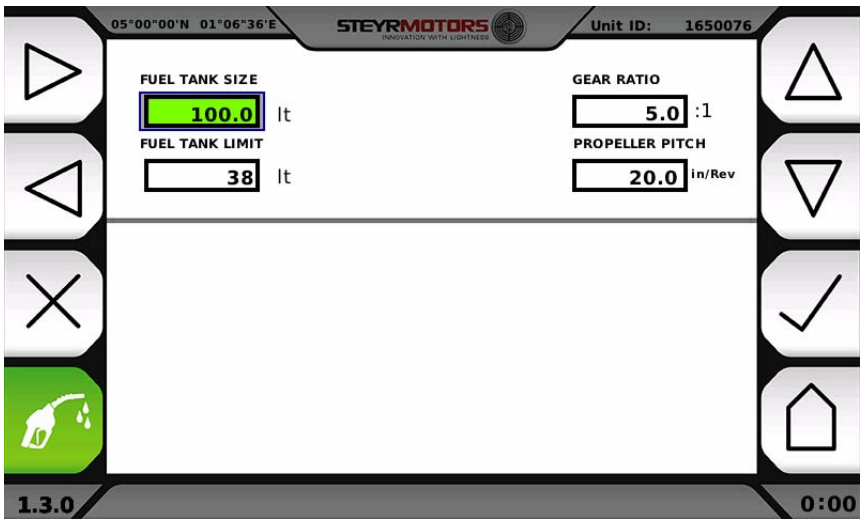
5.2.1 Set Fuel Tank size, Gear Ratio and Propeller Pitch

Below screen will appear once the function-key for menu “Fuel” is pressed a second time or pressed longer than 1 second.

The user can enter:

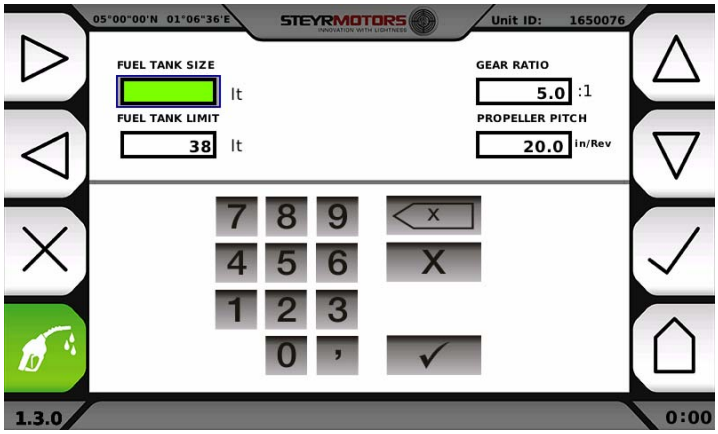
- the fuel tank size (preset value: 200 litre)
- the gear ratio (preset value: 0)
- the fuel tank limit (preset value: 20 litre)
  NOTE: An alarm will appear if fuel quantity in tank is below the set limit (The icon for the fuel lights yellow)
- propeller pitch for slip calculation (preset value: 0)

If gear ratio and propeller pitch are set to 0 (=preset values) the slip calculation is off.



Procedure to change parameter values:

1. Select required parameter with ▷ ◁ ▽ △
2. Select Enter ✓
3. Following screen with choice box will appear



4. Enter required digit via buttons ▽ △

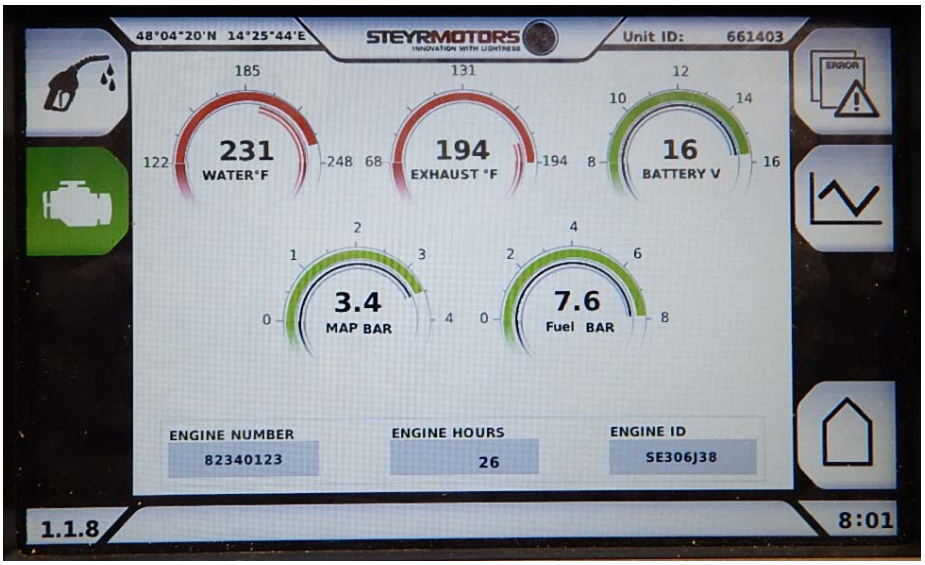
   and quit with ✓

5. If the total value for parameter is okay, select button

   and press ✓

5.3 Engine menu

On this mask the engine related values are displayed.
Below screen will appear once the function-key for menu “Engine” is pressed.



Engine coolant water temperature (top-left)
The bar will change color from green to red when temperature exceeds the tolerance programmed in ECU Software.

Exhaust temperature (top-middle)
The bar will change color from green to red when temperature exceeds the tolerance programmed in ECU Software.

Battery (top right)
The gauge for battery voltage shall adjust the scaling automatically:

Values	Voltage range
<= 16V	12V-Range
>16V	24V-Range

Boost pressure (bottom-left)
MAP=Manifold Air Pressure

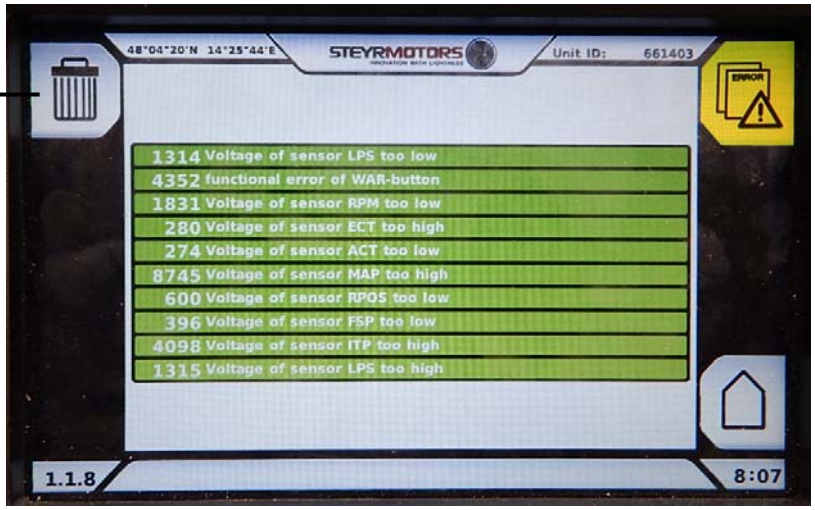
Fuel pressure (bottom-right)

Engine Number, Engine Hours, Engine ID
This information is sent automatically from the ECU.

5.4 Alarm menu

Below screen will appear once the function-key for menu “Alarm” is pressed.

Clear Service Code


48°04'20'N 14°25'44'E
STEYRMOTORS
Unit ID: 661403
ERROR
1314 Voltage of sensor LPS too low
4352 functional error of WAR-button
1831 Voltage of sensor RPM too low
280 Voltage of sensor ECT too high
274 Voltage of sensor ACT too low
8745 Voltage of sensor MAP too high
600 Voltage of sensor RPOS too low
396 Voltage of sensor FSP too low
4098 Voltage of sensor ITP too high
1315 Voltage of sensor LPS too high
1.1.8
8:07

The Alarm mask displays max. 10 active Service Codes (Level 1).

Service Code Level L1 (current)

If a Service Code is active, the icon for Alarm menu will change from grey to yellow (see above illustration). For Service Code table refer to Operation Manual of engine.
If an error Level 1 (L1) occurs after ignition OFF and ON again, the fault is stored in ECU as Level 2 (L2).
Level 2 Service Codes are not displayed via SCC 2.

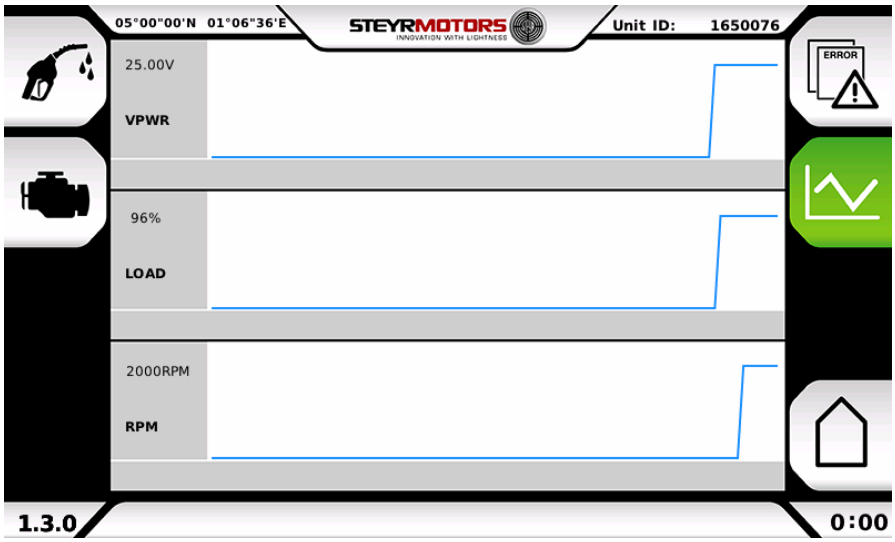
Clear Service Codes

Once button “Clear Service Codes” is selected, the active Service Codes (Level 1) can be deleted. In case the Service Code(s) reappears, the Service Code is still active and the root cause must be determined.
For further assistance contact earliest possible a STEYR MOTORS authorized Service Partner.
Contacts of STEYR MOTORS authorized Service Partners under:

www.steyr-motors.com/network/

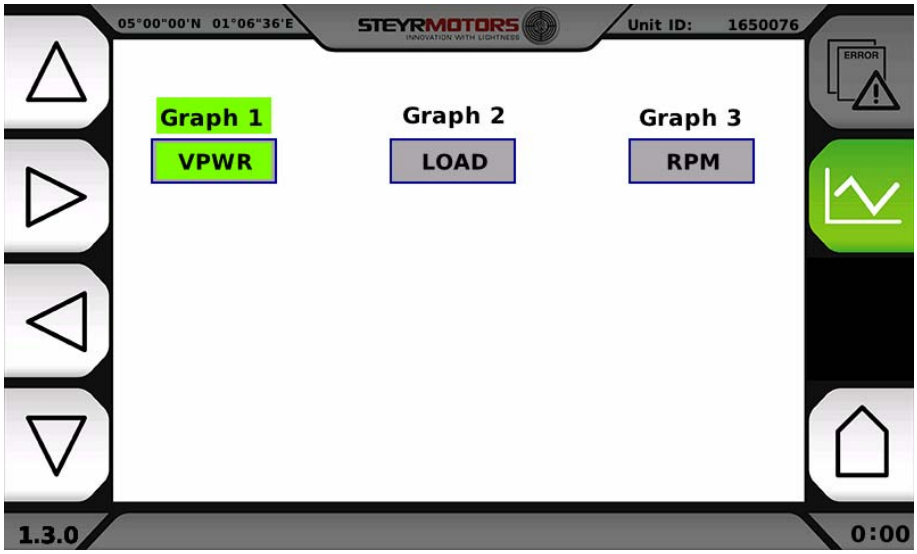
5.5 Diagram menu

Below screen will appear once the function-key for menu “Diagram” is pressed.
In this mask three engine-parameters can be selected.
The parameter-graph shows the actual value present on the engine.



5.5.1 Change displayed parameter

Below screen will appear once the function-key for menu “Diagram” is pressed a second time:

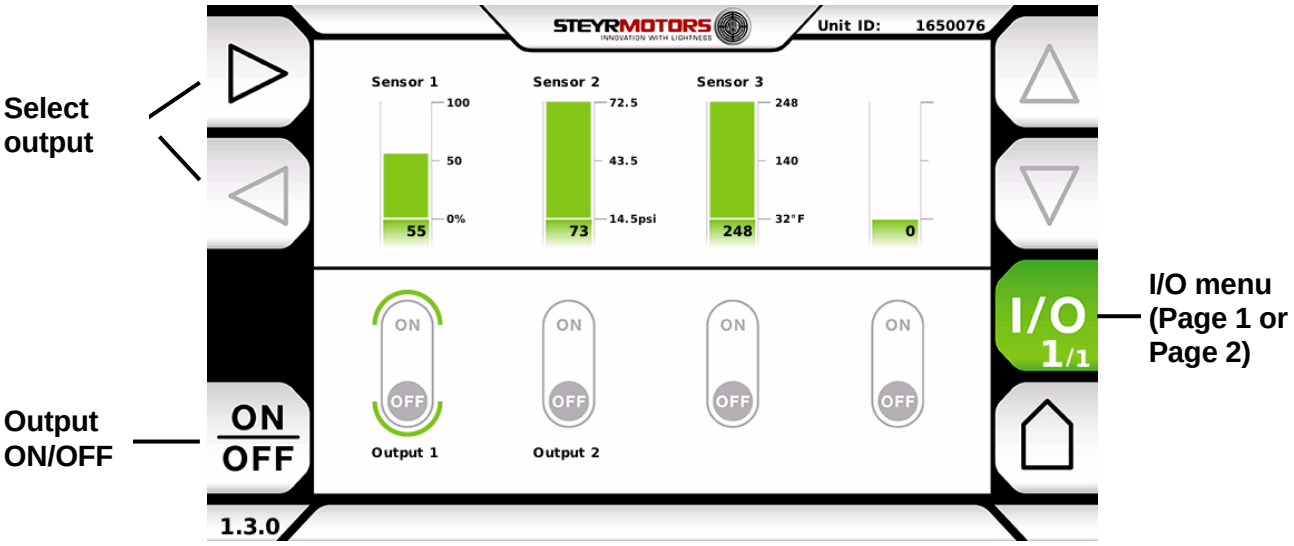


Symbol	Description
▷ ◁	Select Graph 1, 2 or 3
△ ▽	Select engine parameter out of the preset list

The following engine parameters can be selected

Short name	Description
RPM	Engine Speed
CMD	Accelerator Pedal Position
LOAD	Engine Percent load at current speed
ECT	Engine Coolant Temperature
LOP	Oil Pressure
FSP	Fuel Supply Pressure
MAP	Boost pressure / Manifold Air pressure
ACT	Air Charge Temperature
MET	Manifold Exhaust Temperature
VPWR	Alternator Charge Voltage Indic.
EXT	Engine Exhaust Gas Temperature (T30)

5.6 I/O-Box menu (Option)



To display the optional SCC I/O-Box menu, update the SCC as described under chapter 6.2 Software update to display I/O-Box menu.
The value of each connected sensor is shown at the top.
Status of outputs is shown at the bottom.

Selecting output ▷ ◁
With the arrow buttons you can select between the outputs.

Output ON/OFF
Pressing the button, the selected output can be switch ON / OFF.

I/O menu (Page 1 / Page 2)
Pressing the button a second time, I/O Box menu page 2 appears.

5.7 Display Settings menu

Once the MENU Key (see in below illustration) is pressed, the following will be displayed

Following settings are to change:

- Brightness selection
- Selection of time zone for GPS (GMT is default value)
- Temperature unit selection
- Speed selection
- Pressure selection
- Volume unit selection
- LOAD CONFIG (see 6.2 Software update to display I/O-Box menu)

5.7.1 Day/Night appearance

Between Day/Night mode can be switched if Enter key (see in below illustration) is kept pressed above >1second. The Day/Night mode can be displayed only for the Home menu.

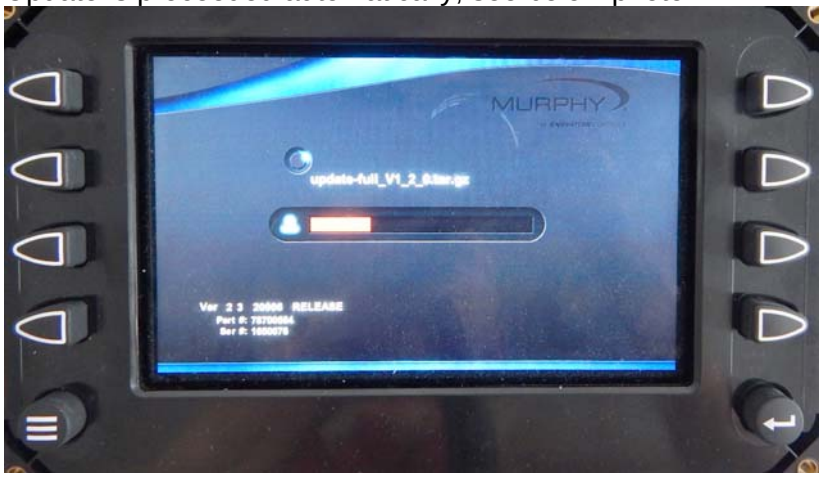
6 Software update

6.1 Software update for SCC

1. The Update Software File is to download only for STEYR MOTORS Service Partner from STEYR MOTORS homepage
   http://www.steyr-motors.com/download/manuals-spare-parts/option-equipment/
2. Copy Update File on a USB-Stick.
3. Connect USB-Stick to USB-Port on the SCC2 display;
   See chapter **4 Connecting the display, point c**.

4. Press and hold any button on the SCC2 and turn at the same time the Ignition OFF and ON until the below mask is shown.
5. Press **Enter Key** button two times.

6. Update is proceeded automatically, see below photo.



7. The Update is finished when the Home menu appears.
8. The updated SCC2 Software-Version is displayed bottom left.

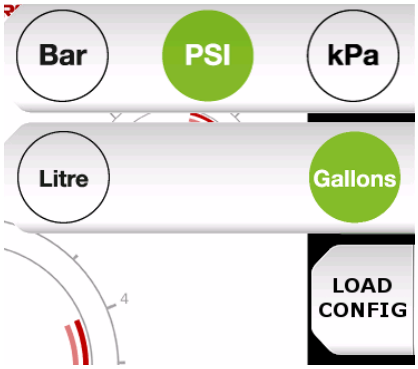
6.2 Software update to display I/O-Box menu

Procedure to load configuration file on SCC 2 display menu I/O-Box.
NOTE: SCC_Config.txt is configured and provided from STEYR MOTORS on customers request.

1. Copy the file **SCC_Config.txt** on a USB-Stick.
2. Ensure SCC2 is shutdown (turn ignition OFF via engine's instrument panel/key-switch or push button).
3. Connect USB-Stick to USB-Port on the SCC2 display;
   See chapter 4 Connecting the display, point c.

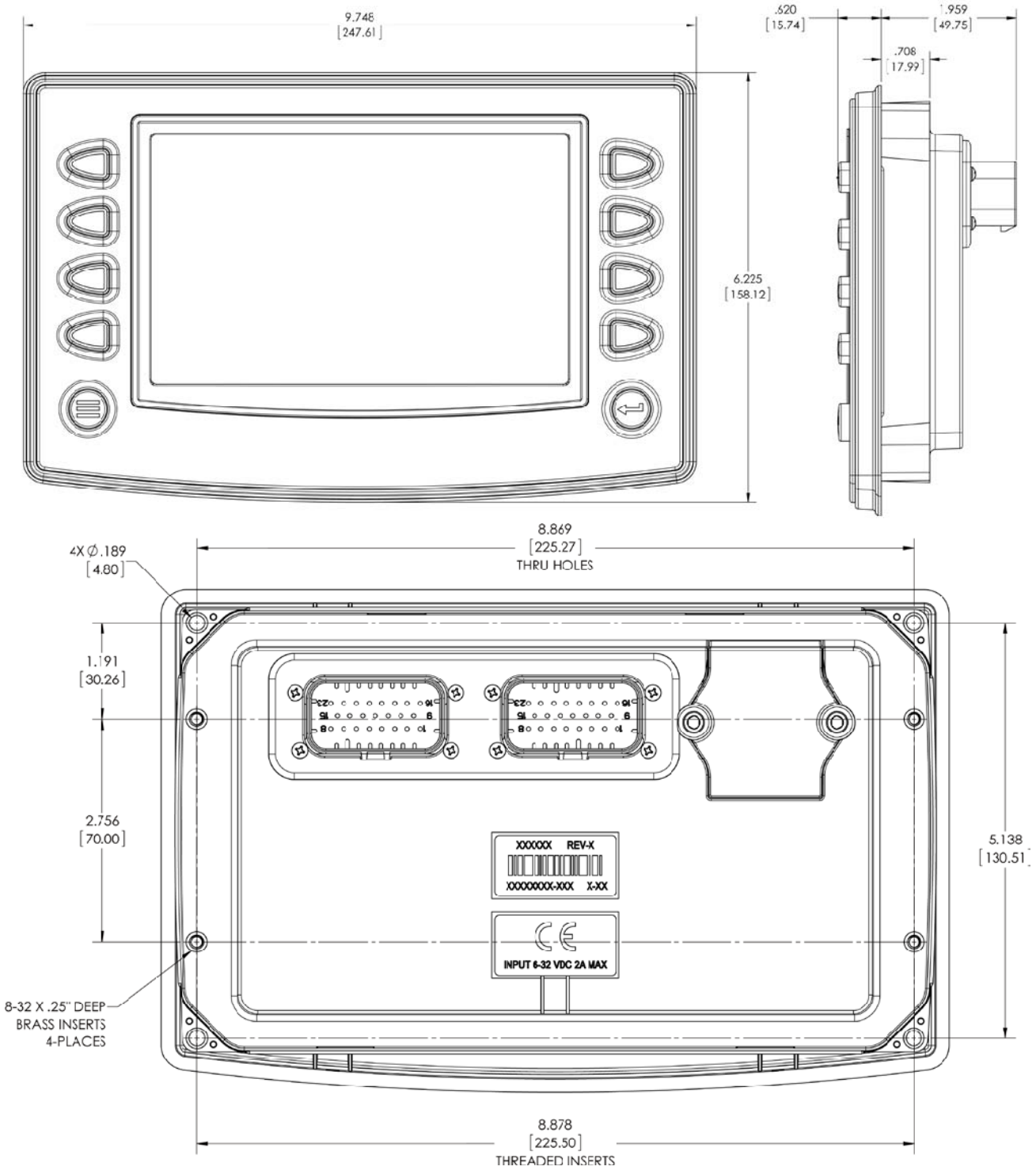
4. Turn on the SCC2 (turn ignition ON via engine's instrument panel/key-switch or push button).
5. Press the button **MENU key** as below illustrated.

6. Press the button **LOAD CONFIG**

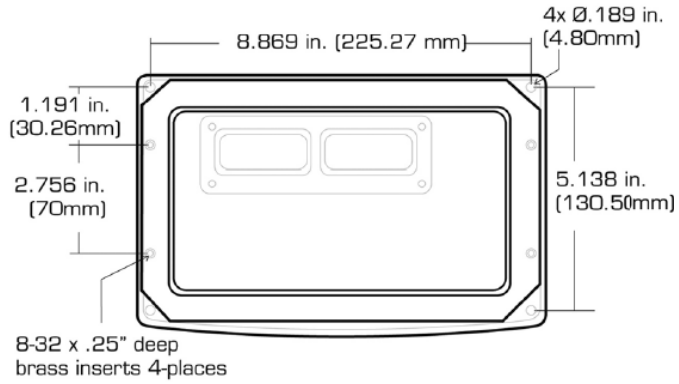


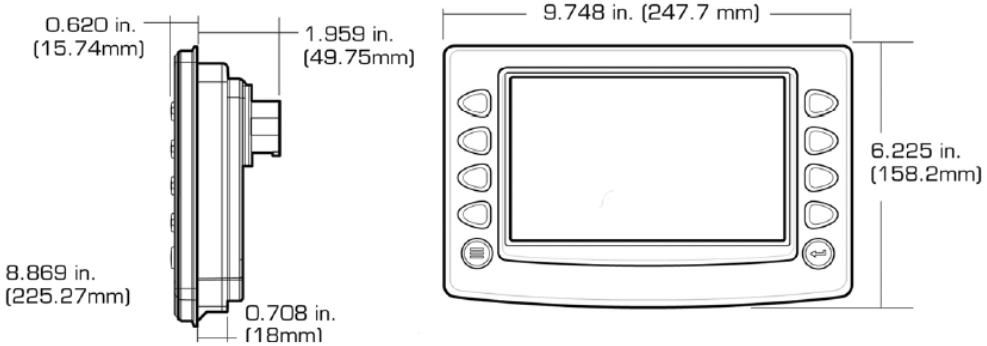
7. Wait until the button **LOAD CONFIG** is green.
8. Shutdown SCC2 (turn ignition OFF via engine's instrument panel/key-switch or push button).
9. Remove USB-Stick from USB-Port of SCC2 (refer to point 3).
10. Turn on the SCC2 (turn ignition ON via engine's instrument panel/key-switch or push button).
11. Menu **I/O-Box** appears with agreed settings.

7 Dimensions for Installation



8 Technical Data





Technical

Display:	7” (178mm) color transmissive TFT LCD
Resolution:	WVGA, 800 x 480 pixels, 16-bit color
Viewing Angle:	±65° horizontal, +55°/-65° vertical
Orientation:	Landscape
Backlighting:	LED, 1000 nit typical brightness 40,000 hr. minimum
Contrast Ratio:	400:1
Refresh Rate:	60 Hz
Microprocessor:	Freescale™ i.MX357, 32 bit, 532 MHz, ARM11 core

QNX® Real-time Operating System

Flash Memory:	2 GB total, 1 GB available for data logging
RAM:	128 Mbytes SRAM
Operating Voltage:	6-36 VDC, reverse polarity protected

Environmental

Operating Temperature: -40°C to +85°C Storage

Temperature:	-40°C to +85°C
Protection:	IP66 and 67, front and back.
Emissions:	SAE J1113
Immunity:	SAE J1113
Vibration:	Random vibration, 7.86 Grms (5-2000 Hz), 3 axis

CE Marking
Quality Standard: ISO 9001
Directive: 2004/108/EC (European Electromagnetic Compatibility)
European Harmonised standard:
EN 61000-4-3 (RADIATED EMF IMMUNITY)
EN 61000-4-4 (EFT IMMUNITY POWER and I/O LINES)
EN 61000-4-5 (SURGES POWER LINES)
EN 61000-4-6 (RF IMMUNITY)
EN 61000-4-8 (MAGNETIC FIELD IMMUNITY)
EN 60945 (ESD)
EN 60945 (CONDUCTED EMISSIONS)
HYBRID EN60945 CISPR 11 CLASS B (RADIATED EMISSIONS)

SERVICE NETWORK

Authorised Service Partner & Dealer

Easy access to established Service Partner Network can be found on the STEYR MOTORS homepage:

http://www.steyr-motors.com/network

STEYR MOTORS GmbH
Im Stadtgut B1
A-4407 Steyr-Gleink, AUSTRIA
www.steyr-motors.com